CLAIMS

We claim:

Sub a1

1. A method for applying adaptive security to a data stream, comprising the steps of:

identifying a desired security level range and a desired actual security level which falls within the desired security level range for communicating a data stream from a send host to a receive host;

determining an actual security level in the receive host based upon the availability of a number of security processor operations;

communicating the actual security level from the receive host to the send host;

generating a plurality of data packets associated with the data stream in the send host, the data packets having an authentication header including the desired security level range and the actual security level;

reallocating computing resources at the receive host if data packets cannot be verified at the desired actual security level with a current allocation of resources; and

verifying the data packets at the actual security level, the actual security level being within the desired security level range.

2. The method of claim 1, further comprising the step of altering the actual security level in the send host using a security level thermostat.

3. The method of claim 1, wherein the step of reallocating computing resources at the receive host comprises identifying the availability of a number of security operations per second (SOPS) employed in non-critical operations at the receive host and reallocating these SOPS for processing the data stream.

4. The method of claim 1, further comprising the step of determining the bandwidth of the data stream being sent from the send host to the receive host.

5. The method of claim 4, further comprising the step of reallocating communication resources if there are insufficient computing resources available for reallocation at the receive host.

6. The method of claim 5, wherein the step of reallocating communication resources comprises adjusting the bandwidth of the data stream.

7. The method of claim 6, further comprising the step of identifying the number of security operations per second (SOPS) that will be required to process the data stream and comparing this number with the number of SOPS available at the receive host to determine the amount of bandwidth adjustment needed.

8. The method of claim 6, wherein the bandwidth is adjusted by decreasing data transmission rate.

9. The method of claim 6, wherein the bandwidth is adjusted by increasing a data portion of the data packets to lower a security:message ratio of the data packets.

10. The method of claim 6, further comprising the step of calibrating the computing resources with the communication resources.

11. A method for communicating and applying adaptive security to a data stream comprising a plurality of data packets, comprising the steps of:

identifying a desired security level range and a desired actual security level which falls within the desired security level range for the data stream to be received by a host;

determining the availability of a number of security processor operations at the host;

reallocating computing resources at the host if the data stream cannot be verified at the desired actual security level;

reallocating communication resources if there are insufficient computing resources available for reallocation at the host; and

verifying the data packets at the actual security level, the actual security level being within the desired security level range.

12. The method of claim 11, wherein the step of reallocating computing resources at the host comprises identifying the availability of a number of security operations per second (SOPS) employed in non-critical operations at the host and reallocating these SOPS for processing the data stream.

13. The method of claim 11, wherein the step of reallocating communication resources comprises adjusting the bandwidth of the data stream.

14. The method of claim 13, further comprising the step of identifying the number of security operations per second (SOPS) that will be required to process the data stream and comparing this number with the number of SOPS available at the receive host to determine the amount of bandwidth adjustment needed.

15. The method of claim 13, wherein the bandwidth is adjusted by decreasing data transmission rate.

16. The method of claim 13, wherein the bandwidth is adjusted by increasing a data portion of the data packets to lower a security:message ratio of the data packets.

17. The method of claim 11, further comprising the step of calibrating the computing resources with the communication resources.

18. A system for facilitating data communication to a host with adaptive security, comprising:

means for determining whether a desired actual security level for a transmitted data stream falls within a desired security level range;

means for determining the availability of a number of security processor operations at the host;

means for reallocating computing resources at the host if the data stream cannot be verified at the desired actual security level; and

means for reallocating communication resources if there are insufficient computing resources available for reallocation at the host.

19. The system of claim 18, wherein the means for determining the availability of a number of security processor operations comprises means for determining a processor time availability by examining a resource tracking table for a non-critical processor time usage of at least one existing data stream.

20. The system of claim 18, wherein the means for determining the availability of a number of security processor operations comprises means for identifying the availability of a number of security operations per second (SOPS) employed in non-critical operations at the host and reallocating these SOPS for processing the data stream.

21. The system claim 18, wherein the means for reallocating communication resources comprises means for adjusting the bandwidth of the data stream.

22. The system of claim 21, wherein the means for adjusting the bandwidth of the data stream comprises means for decreasing the data transmission rate.

23. The system of claim 21, wherein the means for adjusting the bandwidth of the data stream comprises means for increasing a data portion of data packets of the data stream to lower a security:message ratio of the data packets.

24. The system of claim 18, further comprising means for calibrating the computing resources with the communication resources.

25. A computer program embodied on a computer-readable medium for facilitating data communication to a host with adaptive security, comprising:

logic configured to determine whether a desired actual security level for a transmitted data stream falls within a desired security level range;

logic configured to determine the availability of a number of security processor operations at the host;

logic configured to reallocate computing resources at the host if the data stream cannot be verified at the desired actual security level; and

logic configured to reallocate communication resources if there are insufficient computing resources available for reallocation at the host.

26. The computer program of claim 25, wherein the logic configured to determine the availability of a number of security processor operations comprises logic configured to determine a processor time availability by examining a resource tracking table for a non-critical processor time usage of at least one existing data stream.

27. The computer program of claim 25, wherein the logic configured to determine the availability of a number of security processor operations comprises logic configured to identify the availability of a number of security operations per second (SOPS) employed in non-critical operations at the host and reallocate these SOPS available for processing the data stream.

28. The computer program of claim 25, wherein the logic configured to reallocate communication resources comprises logic configured to adjust the bandwidth of the data stream.

29. The computer program of claim 28, wherein the logic configured to adjust the bandwidth of the data stream comprises logic configured to decrease the data transmission rate.

30. The computer program of claim 28, wherein the logic configured to adjust the bandwidth of the data stream comprises logic configured to increase a data portion of data packets of the data stream to lower a security:message ratio of the data packets.

31. The computer program of claim 25, further comprising logic configured to calibrate the computing resources with the communication resources.